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seems to us that a cat which looked less like a ravenous lion and more like a demure pussy would better make us realize that it is not only the starving outcast which menaces our bird-life but also the purring feline by the hearthside.—H. W. GRINNELL.

OUR SHOREBIRDS AND THEIR FUTURE. By WELLS W. COOKE, Assistant Biologist, Bureau of Biological Survey. [From Yearbook of Department of Agriculture for 1914, pp. 275-294, pls. 21-23, figs. 16-18.]

In this paper Professor Cooke sets forth accurately and forcibly the main facts and factors in the shorebird situation. The diminution which began to be noticeable in the seventies continued at an accelerated rate, owing to excessive shooting, until several once plentiful species were threatened with extermination, and one of them had actually become extinct. It is emphasized that this was the result of the poorest sort of business policy; for the sport value of our shorebirds is great, and with an approach to former numbers should amount to vastly more. The recently enacted Federal regulations give promise of relieving the stress put upon the birds by spring-shooting. But only time will show whether or not these regulations are sufficient to cause a definite return towards former numbers. A slight improvement is thought by some to be already apparent.

Of course, with such species as depended at one season or another upon territory now under close cultivation, no great revival can be expected. Thus the Upland Plover, Mountain Plover, and Long-billed Curlew have had their breeding grounds largely appropriated for wheat raising or dairying. On the other hand, the Wilson Snipe and Woodcock must rest their cases chiefly in the hands of the gunner, or rather, in the laws which govern the gunner; for there is yet plenty of land suited to summering and to wintering of these birds.

There could be no better illustration of the practical application of purely scientific knowledge, than in the present instance, where the proper treatment of a valuable National asset must rest upon the accumulation of facts in distribution and migration of birds. The worthy efforts of Professor Cooke and his co-workers in the United States Biological Survey to ascertain the facts of bird migration, and to solve the complex problems presented, have occupied years. Marked success has been achieved, enough of success to now warrant generalizations of great economic importance as well as of deep scientific value. But prob-

lems remain, and vastly more facts must be garnered; nothing must be allowed to interrupt the course of these painstaking investigations.

The paper here noticed can be had for the asking; and because of the interest attaching to its subject and the fascinating style in which this subject is treated, there is every reason why each Cooper Club member should possess himself of a copy,—and not only that, but profit by knowing every bit of its contents.—J. GRINNELL.

A DISTRIBUTIONAL LIST OF THE BIRDS OF CALIFORNIA, by JOSEPH GRINNELL. (Pacific Coast Avifauna Number 11. Published by the Cooper Ornithological Club, October 21, 1915. Pp. 1-217, 3 plates.)

Every student of California birds, whether the amateur, painstakingly groping toward an acquaintance with the commoner species, or the advanced specialist in search of accurate information, will acclaim the appearance of this publication as something greatly needed, and, as need hardly be said, exceptionally well done. Dr. Grinnell, both from his official position and personal predilection, has been in a peculiarly advantageous situation for the production of this work, the activities of the museum of which he is the head being largely directed toward the accumulation of data relating to the distribution of California animals, while as editor of *THE CONDOR* he is naturally in a favorable position for hearing of the discoveries of others.

The real need of such a distributional list is shown in the exhaustion of the edition of the same author's "Check-List of California Birds" (Pacific Coast Avifauna No. 3), for which, though out of print several years, there are inquiries constantly received at the Cooper Club's business office. The present publication is an amplification of the earlier "Check-List", covering no wider a scope, but treating the subject with an elaboration of detail justified by the great accumulation of data since acquired. It treats purely of the distribution of species within the state of California, other phases, of life history or systematic status, being ignored save as incidental to the elucidation of ranges.

Statements of distribution, more especially of land birds, are made largely in terms of "life zones" and "faunal areas", and the whole book, in the resulting conciseness of phrase and clear conveyance of ideas, is a striking justification, or rather exemplification, of the practical usefulness—the

truth—of these conceptions. There are maps, of course, showing life zones and faunal areas, for use in connection with the text; and with this combination it would seem that even those most skeptical of the life zone concept, cannot but see the convenience and accuracy of this method of treatment. In fact, in such a state as California, with its wonderful diversity of surface and climate, it is difficult to see how any other phraseology could be at all satisfactory. Under conditions as uniform as those prevailing in many of the states east of the Rockies, where perhaps there may be but a single life zone represented, it is probably necessary to define ranges by political boundaries, but such a procedure in this state would be at best but clumsy and inaccurate.

In this connection we would draw especial attention to the introductory chapter on "Distributional Areas." Life zone ideas and phraseology have been used more and more by those qualified to handle such tools accurately, until they have come to permeate also the activities of many naturalists with but superficial or erroneous conceptions of the real meanings of the expressions they use so freely. The reviewer has listened to many more or less informal talks as well as set lectures, to mixed audiences or regular classes, in which the speakers were but too evidently possessed of the haziest ideas as to the distinctions they sought to use. Life zones, of course, have long been clearly explained, and the theories upon which they rest elucidated and enlarged upon, by Dr. C. Hart Merriam; but certain distributional terms, such as "faunal areas", "regions", etc., used so frequently of late, and in rather different senses from those in which they are found in older literature on the subject, have proved sources of confusion to many. Dr. Grinnell's explanatory chapter is so clear an exposition of this complicated subject, at least as regards conditions on the Pacific Coast, and of the sense in which he uses the several terms, that it should certainly be carefully perused by all interested in the study. To the reviewer's notion it might well be inserted entire in any educational text-book treating of the subject of geographical distribution. Of the three accompanying plates, two, showing, respectively, the Life Zones and Faunal Areas of California, are indispensable to an understanding of the accompanying text. The third is also most interesting and illuminating, showing extent of Life Zones on four cross-sectional profiles across the state.

The treatment of species is practically the same as in the author's previously published "Check-List of California Birds", though with far greater elaboration of detail. The accepted current name of each species is preceded by a running number, and, in parenthesis, the A. O. U. Check-List number. A list of synonyms includes probably all scientific names applied to the species in literature pertaining to California, and such English names as have been in general use. As these names are all included in the index, this is a feature of the publication that should be eminently useful to the local bird student. He can in a moment identify any bird name encountered in his reading. In the "status" there is abundant and most satisfactory citation of authorities, references mostly to literature, or to collections. The publication is, however, by no means merely a compilation of already published facts, but contains a vast amount of previously unpublished data. For much of this the field activities of the Museum of Vertebrate Zoology are responsible, though other large local collections have also contributed. Of special interest are the citations from Belding's unpublished manuscript of the "Water Birds of the Pacific District."

Five hundred and forty-one species and subspecies are included in the main list, of which one hundred and sixty-eight are water birds. The "Hypothetical List" numbers sixty-one. The order, and for the most part the general treatment, of the A. O. U. Check-List is followed, the most noticeable deviation from this standard lying in the rather liberal inclusion of slightly defined subspecies not admitted to the Check-List. Of the groups of birds largely represented within the state, attention may be drawn to the eleven races of Fox Sparrow (*Passerella iliaca*) here recognized, calculated to bring deeper despair to the heart of the amateur (and to some who are not amateurs) than the even longer list of California's song sparrows.

Two species are added to the state list, the Wilson Petrel (*Oceanites oceanicus*), and the Oregon Chickadee (*Penthestes atricapillus occidentalis*), on the basis of specimens in the collection of the Museum of Vertebrate Zoology. Another species, the Sonoma Thrasher (*Toxostoma redivivum sonomae*) is here first given a name (page 155). We do not understand the reason for including this diagnosis in a work of such a nature, and do not consider it a desirable procedure. There are many reasons why it would seem best to have given this

description previous publicity through some other channel, while there are no apparent advantages in the course adopted.

The reviewer is in a position where he is the constant recipient of requests from beginning bird students for the recommendation of some book or books treating of California birds, and it is a great satisfaction to be able conscientiously to urge the acquisition of a work such as the one here noticed. The judicious use of Grinnell's "Distributional List of California Birds", in conjunction with the same author's "Bibliography of California Ornithology" (Pacific Coast Avifauna No. 5) cannot fail to give a fund of accurate information along the line desired, as well as to point the way to sources of knowledge on related subjects not covered in these books. To the advanced specialist in ornithology, of course, this "List" will be an absolute necessity.

It goes without saying that the Cooper Club is congratulating itself upon the appearance of this, its latest and largest publication. Many and devious are the shifts to which the business office of the club has been put in the successful production of club members' contributions to knowledge, but the firm belief that the demand for worthy publications would eventually pay the cost of production is finding justification in the steadily increasing call upon the stock in hand. The demand for the "Distributional List of California Birds" should go far toward placing the Pacific Coast Avifauna branch of the Club's publishing business upon as firm a financial basis as is THE CONDOR.—H. S. SWARTH.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

MAY.—A meeting of the Northern Division of the Cooper Ornithological Club was held at the Y. W. C. A. Auditorium, Panama-Pacific International Exposition grounds, San Francisco, California, May 19, 1915, at 4:30 p. m., at the close of the second afternoon session of the American Ornithologists' Union. President Joseph Mailliard was in the chair, with the following members present: Mesdames Allen and Bryant, Messrs. Bade, Bryant, Dwight, Evermann, W. K. Fisher, Grinnell, Horsfall, Law, Loomis, E. C. Mailliard, Nichols, Ohl, Palmer, Sage, Shelton, Storer, W. P. Taylor, Tyler, Wells, and Wilson.

The minutes of the April Northern Division were read and approved and the minutes of the Southern Division March meeting read. The following were elected to membership: F. W. Henshaw, and the four persons proposed at the Southern Division March meeting. The following applications for membership were read: C. M. Goethe, 2617 K Street, Sacramento, proposed by H. C. Bryant; Mrs. Carlotta C. Hall, 1615 La Loma Avenue, Berkeley, proposed by J. Grinnell; Miss Georgia V. Miller, 419 Golden Gate Avenue, San Francisco, proposed by H. L. Coggins; and Ashby D. Boyle, 351 5th Avenue, Salt Lake City, Utah, proposed by R. H. Palmer; and from the Southern Division four persons proposed at their April meeting.

The Secretary stated that a communication had been received from the Pacific Division of the American Association for the Advancement of Science, inviting Cooper Club members to become members of the American Association. Adjourned.—TRACY I. STORER, *Secretary*.

SEPTEMBER.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held in Room 102, California Hall, University of California, Berkeley, September 16, 1915, at 8 p. m. President Joseph Mailliard was in the chair with the following members present: Mesdames Bryant and Allen, and Messrs. Bryant, Carriger, Ohl, Storer, Trenor and Willett.

The minutes of the Northern Division May meeting were read and approved. Upon motion, duly carried, reading of the minutes of the Southern Division for the last four months was dispensed with. The following were elected to membership: C. M. Goethe, Mrs. Carlotta C. Hall, Miss Georgie V. Miller, and Ashby D. Boyle. Due to the time which has elapsed since the last meeting all persons proposed for membership at the Southern Division during the summer months were elected to membership. Applications for membership were received as follows: Miss Cornelia C. Pringle, Cupertino, proposed by Miss Hazel King; Miss Lydia Atterbury, 2620 LeConte Ave., Berkeley, and C. A. Swarthington, 2223½ Chapel St., Berkeley, both proposed by Tracy I. Storer.

A communication signed by J. Grinnell, W. Lee Chambers, Frank S. Daggett, and Harry S. Swarth, proposing for honorary membership in the Club, Mr. Henry W. Henshaw, Chief of the Bureau of Biological Survey, was read. It was decided to notify